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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,536	01/16/2002	Hans-Gunter Hirsch	4114-2	1795

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EXAMINER

HARPER, V PAUL

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/046,536	Applicant(s) HIRSCH ET AL.	
	Examiner V. Paul Harper	Art Unit 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

1. The Examiner has considered the references listed in the Information Disclosure Statement dated 1/16/02. A copy of the Information Disclosure Statement is attached to this office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 11, 14-17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Berkow et al. ("Measuring Sound: Selecting the FFT Size" Syn-Aud-Con Newsletter, Vol. 26, No. 1. Winter 1998), hereinafter referred to as Berkow.

Regarding **claim 1**, Berkow teaches a technique for using multiple FFTs at different sampling rates (p. 1, ¶2). Berkow's teachings include the following:

- a first spectral analyzer for analyzing the speech signal up to a first frequency (p. 1, ¶2, FFTs are spectrum analyzers); and
- a second spectral analyzer for analyzing the speech signal at least above the first frequency (p. 1, ¶2, multiple FFTs to cover the range, see Fig. on p. 2).

Regarding **claim 2**, Berkow teaches everything claimed, as applied above (see claim 1). Berkow also teaches “the first frequency is derived from the lowest sampling rate” (p. 1, ¶2, inherently true since the Nyquist Rate determines the maximum frequency, thus the lowest sampling rate would have the lowest frequency range).

Regarding **claim 3**, Berkow teaches everything claimed, as applied above (see claim 1). In addition, Berkow teaches “the second spectral analyzer analyzes the speech signal only above the first frequency” (p. 1, the FFTs have different sizes and are put together to cover the spectrum, see figure on p. 2).

Regarding **claim 4**, Berkow teaches everything claimed, as applied above (see claim 1). In addition, Berkow teaches “the second spectral analyzer analyzes the speech signal up to a second frequency and further comprising a third spectral analyzer for analyzing the speech signal at least above the second frequency” (p. 1, the FFTs have different sizes and are put together, see figure on p. 2).

Regarding **claim 5**, Berkow teaches everything claimed, as applied above (see claim 4). In addition, Berkow teaches “the third spectral analyzer analyzes the speech signal only above second frequency (p. 1, the FFTs have different sizes and are put together to cover the spectrum, see figure on p. 2).

Regarding **claim 11**, Berkow teaches a technique for using multiple FFTs at different sampling rates (p. 1, ¶2). Berkow's teachings include the following:

- a first spectral analyzer for analyzing the speech signal in a lower spectral range up to an upper frequency limit which is derived from the lowest system sampling rate (p. 1, ¶2, FFTs are spectrum analyzers); and
- a second spectral analyzer for analyzing the speech signal, the second spectral analyzer being arranged in parallel to the first spectral analyzer (p. 1, ¶2, multiple FFTs to cover the range, see Fig. on p. 2).

Regarding **claim 14**, this claim has limitations similar to claim 1 and is rejected for the same reasons.

Regarding **claim 15**, this claim has limitations similar to claim 3 and is rejected for the same reasons.

Regarding **claim 16**, this claim has limitations similar to claim 4 and is rejected for the same reasons.

Regarding **claim 17**, this claim has limitations similar to claim 5 and is rejected for the same reasons.

Regarding **claim 20**, Berkow teaches a technique for using multiple FFTs at different sampling rates (p. 1, ¶2). Berkow's teachings include the following:

- sampling a speech signal at one of at least two different system sampling rates (p. 1, ¶2, different sampling rates);
- performing a first analysis step for analyzing the sampled speech signal up to a first frequency (p. 1, ¶2, FFTs are spectrum analyzers); and
- performing a second analysis step for analyzing the sampled speech signal at least above the first frequency (p. 1, ¶2, multiple FFTs to cover the range, see Fig. on p. 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkow in view of Rabiner et al. ("Fundamentals of Speech Recognition," Prentice Hall, 1993), hereinafter referred to as Rabiner.

Regarding **claim 7**, Berkow teaches everything claimed, as applied above (see claim 1). But Berkow does not specifically teach "at least one of the spectral analyzers

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is an energy analyzer.” However, the examiner contends that this concept was well known in the art, as taught by Rabiner.

In the same field of endeavor, Rabiner teaches methods for speech recognition that includes a speech analysis system that determines energy according to frequency (p. 45, Fig. 2.32, §2.5.1, ¶2; also §3.2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow by specifically providing features, as taught by Rabiner, because it is well known in the art at the time of invention for the purpose of performing some common techniques for speech recognition (Rabiner, §2.5.1).

Regarding **claim 8**, Berkow teaches everything claimed, as applied above (see claim 7). But Berkow does not specifically teach “at least one energy analyzer is configured as a filterbank.” However, the examiner contends that this concept was well known in the art, as taught by Rabiner.

Rabiner further teaches that the common methods for speech recognition include a speech analysis system using filterbanks (p. 45, Fig. 2.32, §2.5.1, ¶2; also §3.2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow by specifically providing features, as taught by Rabiner, because it is well known in the art at the time of invention for the purpose of performing some common techniques for speech recognition (Rabiner, §2.5.1).

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Regarding **claim 9**, Berkow teaches everything claimed, as applied above (see claim 1). But Berkow does not specifically teach “at least one coding unit for coding acoustic parameters of the sampled speech signal.” However, the examiner contends that this concept was well known in the art, as taught by Rabiner.

In the same field of endeavor, Rabiner teaches methods for speech recognition that includes the coding of the spectral analysis information (p. 45, Fig. 2.32, §2.5.1, ¶2; also §3.4).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow by specifically providing features, as taught by Rabiner, because it is well known in the art at the time of invention for the purpose of reducing storage requirements (Rabiner, p. 123, ¶3).

4. Claims 10, 13, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Berkow in view of Rabiner and Maes (U.S. Patent Application Publication 2002/0184373), hereinafter referred to as Maes.

Regarding **claim 10**, Berkow in view of Rabiner teaches everything claimed, as applied above (see claim 9). But Berkow does not specifically teach the use of “an interface for transmitting the coded acoustic parameters to a remote network server.” However, the examiner contends that this concept was well known in the art, as taught by Maes.

In the same field of endeavor, Maes discloses a network for transport, coding and control of conversational protocols (Fig. 1, client items 111, 110, 107, network item 101-104, server item 105a; also ¶[0290]) .

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow in view of Rabiner by specifically providing features, as taught by Maes, because it is well known in the art at the time of invention for the purpose of supporting distributed applications (Maes, ¶[0016]).

Regarding **claim 13**, Berkow teaches a technique for using multiple FFTs at different sampling rates (p. 1, ¶2). Berkow's teachings include the following:

- speech signals are sampled at two or more different system sampling rates (p. 1, ¶2, FFTs at different sampling rates).

But Berkow does not specifically teach "codebook ... for a specific combination of one or more acoustic parameters obtained by analyzing the speech signal up to a first frequency and one or more further acoustic parameters obtained by analyzing the speech signal at least above the first frequency." However, the examiner contends that this concept was well known in the art, as taught by Rabiner.

In the same field of endeavor, Rabiner teaches methods for speech recognition that includes the coding of the spectral analysis information using codebooks (p. 45, Fig. 2.32, §2.5.1, ¶2; also §3.4).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow by specifically providing features, as

taught by Rabiner, because it is well known in the art at the time of invention for the purpose of reducing storage requirements (Rabiner, p. 123, ¶3).

Furthermore, Berkow does not specifically teach the following: a data signal to be transmitted from a terminal to a network server within an automatic speech recognition system, and the data signal comprising a first data structure relating to the sampling rate at which a speech signal has been sampled and a second data structure containing a codebook index derived from a codebook. However, the examiner contends that this concept was well known in the art, as taught by Maes.

In the same field of endeavor, Maes discloses a network for transport, coding and control of conversational protocols (Fig. 1, client items 111, 110, 107, network item 101-104, server item 105a; also ¶[0290]) .

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow in view of Rabiner by specifically providing features, as taught by Maes, because it is well known in the art at the time of invention for the purpose of supporting distributed applications (Maes, ¶[0016]).

Regarding **claim 19**, this claim has limitations similar to claim 10 and is rejected for the same reasons.

5. Claims 6, 12, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkow in view of Maes.

Regarding **claim 6**, Berkow teaches everything claimed, as applied above (see claim 1). But Berkow does not specifically teach “the spectral analyzers are arranged in parallel.” However, the examiner takes official notice of the fact that the use of parallel operations such as spectrum analysis or filtering was well known in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow such that the FFTs are performed in parallel, since such a configuration will reduce processing time.

Regarding **claim 12**, Berkow teaches a technique for using multiple FFTs at different sampling rates (p. 1, ¶2). Berkow's teachings include the following:

- a) at least one terminal with a first spectral analyzer for analyzing the speech signal up to a first frequency (p. 1, ¶2, FFTs are spectrum analyzers);
- a second spectral analyzer for analyzing the speech signal at least above the first frequency (p. 1, ¶2, multiple FFTs to cover the range, see Fig. on p. 2)

But Berkow does not specifically teach “b) a network server with a central speech recognition stage.” However, the examiner contends that this concept was well known in the art, as taught by Maes.

In the same field of endeavor, Maes discloses a network for transport, coding and control of conversational protocols (Fig. 1, client items 111, 110, 107, network item 101-104, server item 105a; also ¶[0290]) .

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow by specifically providing features, as

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taught by Maes, because it is well known in the art at the time of invention for the purpose of supporting distributed applications (Maes, ¶[0016]).

Regarding **claim 18**, this claim is similar to claim 6 and is rejected for the same reasons.

Regarding **claim 21**, Berkow teaches everything claimed, as applied above (see claim 20). But Berkow does not specifically teach "stored on a computer readable recording medium." However, the examiner takes official notice of the fact that operations such as FFTs are commonly performed by software on a computer and are thus stored on computer readable recording media.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Berkow as indicated above, since software is much easier to modify than hardware.

Citation of Pertinent Art

6. The following prior art made of record but not relied upon is considered pertinent to the applicant's disclosure:

- Carney et al. (U.S. Patent 5,848,097) discloses a wideband FFT channelizer with FFTs performed in parallel (Fig. 4c, col.10, lines 1-20).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is (571) 272-7605. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8/22/05

V. Paul Harper
Patent Examiner
Art Unit 2654

A handwritten signature in black ink, appearing to read "V. Paul Harper", is written over the printed name and title.